II. Claims 9 and 54-55, drawn to CI-2 polypeptides having particular molar amino acid concentrations, classified in class 530, subclass 300.

III. Claims 10-32, 56-58 and 61-86, drawn to CI-2 polypeptides related to SEQ ID NOs: 2, 4, 6, 8, 10, 12, 14, 16, 18 or 20, classified in class 530, subclass 300.

IV. Claims 33-43 (33a), drawn to nucleic acids encoding CI-2 polypeptides as described in Claim 1, classified in class 536, subclass 23.1.

V. Claims 33-43 (33b, d, f-i), drawn to nucleic acids encoding CI-2 polypeptides as described by SEQ ID NOs: 2, 6, 8, 10, 12, 14, 16, 18 or 20, classified in class 536, subclass 23.1.

VI. Claims 33-43 (33e), drawn to nucleic acids which can be amplified by SEQ ID NOs: 21 and 22, classified in class 536, subclass 23.1.

VII. Claims 33-43 (33e), drawn to nucleic acids encoding CI-2 polypeptides with particular amino acid content classified in class 536, subclass 23.1.

VIII. Claims 44-45, drawn to methods for increasing the essential amino acid content in a plant relating to the polypeptide of Claim 10, classified in class 800, subclass 278.

IX. Claim 46, drawn to methods of increasing expression levels of a polypeptide in a transgenic plant cell, classified in class 800, subclass 278.

X. Claims 47 and 49, drawn to methods of increasing the nutritional value of a feed or food source, classified in class 800, subclass 295.

XI. Claim 50, drawn to methods of increasing the nutritional value of a CI-2 polypeptide to enhance its nutritional value, classified in class 530, subclass 300.

XII. Claims 59-60, drawn to CI-2 polypeptides having particular lysine concentrations, classified in class 530, subclass 300.

XIII. Claims 87-92, drawn to CI-2 polypeptides derivatives having a certain number of modifications, classified in class 530, subclass 300.

XIV. Claims 93-95, drawn to method for increasing the essential amino acid content in a plant [polypeptide] (apparent typographical error), classified in class 800, subclass 278.

The subject invention relates to proteins engineering wherein changing the amino acid composition effects the nutrition content of food and feed. The invention specifically relates to derivations of the protease inhibitor CI-2.

The 14 groups of claims in which the Examiner perceives as separate inventions are in reality different embodiments of a single inventive concept.

In the Response to the Restriction Requirement filed by Applicants on January 11, 2001, Applicants provisionally elected to prosecute the claims drawn to polypeptides. The non-elected group was drawn to nucleic acids. Applicants also requested examination of method claims (Claims 47, 49 and 50) involving the polypeptides included in Group I.

Examined has identified four distinct SuperGroups of claims. These SuperGroups are as follows:

- SuperGroup A: Group I - seed claims
- SuperGroup B: Groups II, III, XII and XIII - polypeptide claims
- SuperGroup C: Groups IV, V, VI and VII - nucleic acid claims
- SuperGroup D: Groups VIII, IX, X, XI and XIV - various method claims

Applicants specifically object to the restriction of Groups II (Claims 9, 54-55) and XII (Claims 59-60) as being structurally distinct from Group III. Groups II and XII characterize the polypeptides of Applicants' invention in terms of its amino acid composition. Applicants have amended such claims to more clearly define such claims. The claims of Groups II and XII now provide that the CI-2 derived polypeptide have at least a specified percentage identity to SEQ ID NO: 2. In light of such amendments, Applicants submit that a search of Group III will produce all relevant prior art for the search of Groups II and XII, and a similar analysis of amino acid modifications to the wild type CI-2 amino acid sequence necessary for the analysis of Group III is also necessary for Groups II and XII. Mole % of a particular amino acid, for example lysine, is determined by dividing the total number of lysine amino acids in the sequence by the total number of all amino acids in the sequence. This can be easily accomplished using the results of the computer sequence search required for Group III. Claims 9, 54-55 and 59-60 are also further limited, thereby decreasing the number of search results to be analyzed, in that they related to plan CI-2 derived polypeptides of greater than 50 amino

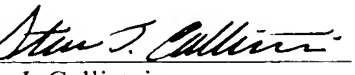
acids in length. Applicants submit that the combination of Groups II, III and XII would not require an additional search burden or require a significant additional burden in the evaluation of the search results.

The Examiner states that "every Group in SuperGroup B is distinct, each from the other, based on structural distinctness." Structural distinctness is usually a factor in determining enzymatic activity. Applicants point out that it is the nutritional value of the amino acid compositions of the claimed sequences, not the enzymatic activity of the claimed sequences, that is the essence of the invention. It is not necessary that the CI-2 derived polypeptides of the Applicants' invention retain protease inhibitor activity. Accordingly, Applicants request that the Examiner examine Groups II, III and XII in one application.

The Examiner has also indicated that rejoinder is possible for certain claims. Applicants respectfully request that the Examiner consider rejoinder of Group VIII (Claims 44-45), Group X (Claims 47 and 49), Group XI (Claim 50) and Group XIV (Claims 93-95), each pursuant to the procedures set forth in the Official Gazette notice dated March 26, 1996 (1184 O.B. 86 and MPEP 842.04), if the claims of Group III are directed to an allowable product and said rejoined claims are amended as deemed necessary to be consistent with the corresponding allowed claims of Group III.

Applicants point out that a restriction requirement is not mandatory merely because the subject matter of different claims may fall in different categories of the U.S. classification system. Rather, the requirement for restriction is discretionary and not required (35 U.S.C. §121, 37 C.F.R. 1.142). Accordingly, Applicants respectfully request the Examiner to reconsider the Supplemental Restriction Requirement as set forth herein. The division of the claims into 14 groups places an onerous burden on the Applicants and does not serve the public interest of retaining related claims within a single patent application.

Respectfully submitted,
Rao, *et al.*

By 
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